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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RYMAN, DANIEL J	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/671,468	HASEGAWA ET AL.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,16-18,21,22 and 24-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,16-18,21,22 and 24-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 13, 16-18, 21, and 22 have been considered but are moot in view of the new ground(s) of rejection.

2. In addition, Applicant asserts that "Examiner has apparently failed to address [in the previous Office Action] claims 24-34 that were added by a Supplemental Preliminary Amendment filed on June 2, 2005." Examiner failed to address these claims because the previous Office Action was mailed on June 1, 2005. Therefore, the Supplemental Preliminary Amendment was not filed in time to be considered by Examiner. MPEP § 714.05. As such, Examiner will treat claims 24-34 as newly added claims for the purpose of this Office Action.

3. Finally, Examiner discovered a new reference, Seagraves et al. (PG Pub 2002/0008525), which has a filing date falling between the filing date of the current application and its parent CIP application. Since the parent CIP application is written in Japanese, Examiner had a spot translation performed, and no passages were discovered relating to the currently amended claims, which require a shifting of a phase in a training sequence. However, since a full translation could not be obtained in a timely manner, Examiner does not know for certain whether or not the current claims are supported by the earlier Japanese application. As such, Examiner has rejected the current claims using the newly discovered reference in addition to alternately rejecting the claims using other prior art. If Applicant wishes to overcome the rejection based on Seagraves, Applicant should indicate to Examiner where the claims are supported in the parent Japanese application.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 13, 16-18, 21, 22, and 24-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Seagraves et al. (PG Pub 2002/0008525).

6. Regarding claims 13, 18, 22, 24-27, 29, 31, and 33, Seagraves disclose a digital subscriber line transmission method, apparatus, and system for transmitting downstream data from a device on an office side to a device on a subscriber side and upstream data from the device on the subscriber side to the device on the office side over a single line by switching between these data transmissions in time-division fashion, dividing data of one symbol, modulating carrier waves having different frequencies by each item of divided data and frequency-multiplexing the modulated signals, and transmitting the frequency-multiplexed signals in bursts a few symbols at a time (¶¶ 8-14), said method comprising the steps of and said apparatus and system comprising means for: a cable for accommodating said line as a first line and another line as a second line on which transmission of downstream data and transmission of upstream data are performed in time-division fashion (¶¶ 8-14); a training-symbol transmitting unit for transmitting a training symbol via said first line at time of training carried out prior to data communication (¶¶ 13 and 14); and a training-symbol receiving unit for receiving a training symbol via said first line (¶¶ 13 and 14); the training-symbol transmitting unit including:

timing-information insertion means for inserting timing information, which specifies an interval in which effects of crosstalk from said second line are received, into a training symbol sequence at time of training carried out prior to data communication (¶¶ 13 and 14); and means for transmitting the training symbol sequence into which the timing information is inserted from the device on the office side to the device on the subscriber side (¶¶ 13 and 14); and said training-symbol receiving unit includes: timing information extraction means for extracting the timing information from the training symbol sequence (¶¶ 13 and 14); and a processor for executing training processing based upon this timing information, wherein said timing-information insertion means inserts the timing information into the training symbol sequence by changing the phase between adjacent training symbols and said timing information extraction means detects a phase-change point in the training symbol sequence and adopts a timing which is a set time before or a set time after the phase-change detection time, as the start timing of said interval in which effects of crosstalk from said second line are received (¶¶ 13 and 14).

7. Regarding claims 16 and 21, Seagraves discloses that the phase of adjacent symbols constructing a training symbol sequence is varied by 90° or 180° (¶¶ 13 and 14).

8. Regarding claims 17, 30, and 34, incorporating the rejection of claims 16 and 21 for claims 30 and 34, Seagraves discloses that a carrier wave of a predetermined frequency is quadrature modulated and the phase between adjacent symbols obtained by quadrature modulation is varied (¶¶ 6-14) where QAM is defined to be part of ADSL (see, e.g. Applicant's admitted prior art pg. 2, line 16-page 4, line 6).

9. Regarding claims 28 and 32, Seagraves discloses that the phase between adjacent symbols is varied at two positions within the FEXT interval (¶¶ 13 and 14).

10. Alternately:

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 13, 16-18, 21, 22, and 24-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Qureshi et al (USPN 4,756,007).

13. Regarding claims 13, 18, 22, 24-27, 29, 31, and 33, Applicant admits as prior art a digital subscriber line transmission method, apparatus, and system for transmitting downstream data from a device on an office side to a device on a subscriber side and upstream data from the device on the subscriber side to the device on the office side over a single line by switching between these data transmissions in time-division fashion, dividing data of one symbol, modulating carrier waves having different frequencies by each item of divided data and frequency-multiplexing the modulated signals, and transmitting the frequency-multiplexed signals in bursts a few symbols at a time (page 6, line 10-page 16, line 26), said method comprising the steps of and said apparatus and system comprising means for: a cable for accommodating said line as a first line and another line as a second line on which transmission of downstream data and transmission of upstream data are performed in time-division fashion (page 6, line 10-page 16, line 26); a training-symbol transmitting unit for transmitting a training symbol via said first line at time of training carried out prior to data communication (page 16, line 27-page 22, line 19); and a training-symbol receiving unit for receiving a training symbol via

said first line (page 16, line 27-page 22, line 19); said transmitting unit including: said transmitting unit including: timing-information determining means for determining timing information, which specifies an interval in which effects of crosstalk from said second line are received (page 22, lines 6-19), and transmitting means for transmitting the timing-information to the receiving unit at a time carried out prior to data communication (page 22, lines 6-19) where it is implicit that the timing information is determined prior to data communication; and said receiving unit includes: means for extracting the timing information (page 22, lines 6-19); and a processor for executing processing based upon this timing information (page 22, lines 6-19).

Applicant does not admit as prior art that the training-symbol transmitting unit includes: timing-information insertion means for inserting timing information, which specifies an interval in which effects of crosstalk from said second line are received, into a training symbol sequence at time of training carried out prior to data communication; and means for transmitting the training symbol sequence into which the timing information is inserted from the device on the office side to the device on the subscriber side; and said training-symbol receiving unit includes: timing information extraction means for extracting the timing information from the training symbol sequence; and a processor for executing training processing based upon this timing information, wherein said timing-information insertion means inserts the timing information into the training symbol sequence by changing the phase between adjacent training symbols and said timing information extraction means detects a phase-change point in the training symbol sequence and adopts a timing which is a set time before or a set time after the phase-change detection time, as the start timing of said interval in which effects of crosstalk from said second line are received. Rather Applicant discloses as prior art that the timing information is

determined by modems at the office side, and then distributed to the other modems (page 22, lines 6-19); however, Applicant does not disclose how this distribution occurs in the prior art.

Qureshi discloses, in a modem communication system, a training-symbol transmitting unit including: timing-information insertion means for inserting timing information, into a training symbol sequence at time of training carried out prior to data communication (col. 4, lines 10-44); and means for transmitting the training symbol sequence into which the timing information is inserted (col. 4, lines 10-44); and a training-symbol receiving unit including: means for extracting the timing information from the training symbol sequence (col. 4, line 10-44); and a processor for executing training processing based upon this timing information (col. 4, lines 10-44) where it is implicit that this is done in order to synchronize the receiver to the timing of the transmitter prior to data communication, wherein said timing-information insertion means inserts the timing information into the training symbol sequence by changing the phase between adjacent training symbols (col. 4, lines 10-44) and said timing information extraction means detects a phase-change point in the training symbol sequence and adopts a timing which is a set time before or a set time after the phase-change detection time (col. 4, lines 10-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to have a training-symbol transmitting unit including: timing-information insertion means for inserting timing information, which specifies an interval in which effects of crosstalk from said second line are received, into a training symbol sequence at time of training carried out prior to data communication; and means for transmitting the training symbol sequence into which the timing information is inserted from the device on the office side to the device on the subscriber side; and said training-symbol receiving unit includes: means for extracting the timing information

from the training symbol sequence; and a processor for executing training processing based upon this timing information, wherein said timing-information insertion means inserts the timing information into the training symbol sequence by changing the phase between adjacent training symbols and said timing information extraction means detects a phase-change point in the training symbol sequence and adopts a timing which is a set time before or a set time after the phase-change detection time, as the start timing of said interval in which effects of crosstalk from said second line are received in order to transmit the timing information of the crosstalk periods to the receiving modem so that synchronization can occur before data communication.

14. Regarding claims 16 and 21, Applicant's Admitted Prior Art in view of Qureshi discloses that the phase of adjacent symbols constructing a training symbol sequence is varied by 90° or 180° (Qureshi: col. 4, lines 10-44).

15. Regarding claims 17, 30, and 34, Applicant's Admitted Prior Art in view of Qureshi discloses that a carrier wave of a predetermined frequency is quadrature modulated and the phase between adjacent symbols obtained by quadrature modulation is varied (Applicant: page 1, line 12-page 6, line 9 and Qureshi: col. 4, lines 10-44).

16. Regarding claims 28 and 32, Applicant's Admitted Prior Art in view of Qureshi does not expressly disclose that the phase between adjacent symbols is varied at two positions within the FEXT interval; however, Applicant's Admitted Prior Art in view of Qureshi teaches that the phase between adjacent symbols is varied within the FEXT interval (Applicant: page 22, lines 6-19 and Qureshi: col. 4, lines 10-44). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is

on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Applicant's Admitted Prior Art in view of Qureshi teaches that the phase between adjacent symbols is varied within the FEXT interval, it would have been obvious to one of ordinary skill in the art at the time of the invention to vary the symbols any number of times, including two times, absent a showing of criticality by Applicant.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ungerbock (USPN 5,353,280) see abstract which discloses transmitting timing information in the training sequence. Gluska et al. (USPN 5,541,967) see abstract which discloses synchronizing modems using a training sequence. Olafsson (USPN 6,212,247) see abstract which discloses synchronizing modems using a training sequence.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2665

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